

Amendments to the Specification:

Please replace paragraph [019] with the following amended paragraph:

[019] One example of a device according to an embodiment of the present invention is shown in FIG. 1. A non-uniform array 25 of insulating features is positioned in a dielectrophoresis chamber 10. Although shown as posts in FIG. 1, the insulating features in other embodiments are implemented as rods, dips, dimples, valleys, ridges, or other structures and combinations thereof. In some embodiments, the insulating features span all or most of the chamber or channel depth, such as posts. In other embodiments, the insulating features are implemented on one or more surfaces of the chamber or channel, and may be stamped or embossed on one or more surfaces, for example. In embodiments where the insulating features are stamped or embossed on one or more surfaces of the channel, radial walls, posts, medians, or other features may be provided spanning the depth of the channel or chamber in order to support a cover. The non-uniform array 25 includes a plurality of features that change in size and/or shape along a direction of particle motion in the dielectrophoresis chamber 10. Generally, by "non-uniform array" of insulating features, herein is meant a plurality of insulatinginsulating features, where the size, shape, and/or spacing between at least two of the features is different relative to one another. In some embodiments, the insulatinginsulating features vary gradually in size across a region of a chamber or a length of a channel. In the illustrated embodiment of FIG. 1, the features are posts varying in radius proportional to their distance from the center of the dielectrophoresis chamber 10. In other embodiments, the size or shape of the insulating features changes discretely over an area of a chamber or length of a channel. In some embodiments, the spacing between array angle gradually changes with respect to the flow direction. In some embodiments, the channel boundaries change gradually or abruptly. In other embodiments, a combination of these variations is used. Generally, gradual variations refer to those over the course of multiple features, each feature bearing part of the change. An abrupt or discrete change is a change over the course of one or a small number of features. The variation in size and/or shape of the insulatinginsulating features in the non-uniform array is designed to exert a non-uniform dielectrophoresis force on particles traversing the array, such that particles having different dielectrophoretic mobilities may be segregated, as described further below.

Please replace paragraph [020] with the following amended paragraph:

[020] In embodiments of the present invention, particles are manipulated in the dielectrophoresis chamber by exerting both a dielectrophoresis force and a "mobilization force" on the particle. Applying an electric field 27 across the array 25 ~~exerts~~—generates a dielectrophoresis force. The insulating features generate a spatially non-uniform electric field within the array 25, thereby generating a dielectrophoresis force on a particle. The mobilization force may be, for example, an electrokinetic force, a pressure force, an inertial force, a gravitational force, a magnetic force, or a combination of these and/or other forces. That is, particles may be mobilized by electrokinesis, advection, sedimentation, buoyancy, magnetophoresis, other hydrodynamic forces, and/or the like. In the embodiment shown in FIG. 1, when an electric field having a non-zero D.C. component is applied between an outer ~~an and~~ inner electrode, the particles experience an electrokinetic force in the direction of the electric field 27. Based on the electrokinetic mobility and the complex conductivity and size of the particles, the competition between the electrokinetic force and the dielectrophoresis force causes the particles to be trapped in a radial ring 30.

Please replace paragraph [023] with the following amended paragraph:

[023] By lowering the applied electric fields over time, particles can be moved toward the ~~center outlet 20 in the center~~ of the array 25. Accordingly, for example, by lowering the applied field, particles immobilized in the annular ring 30 are moved to annular ring 31. To move particles outward, such as from the annular ring 31 to the annular ring 30, the mobilization field polarity is reversed and the magnitude of the electric field lowered. This releases the particles and transports them radially outward. The electric field is then increased to retrap the particles at a larger radius. If this retrapping is performed with the mobilization field reversed (driving the particles outward) the system is unstable, in that if a particle misses its trap, it will encounter progressively weaker traps as it progresses outward. Therefore, the particles are generally driven outward for a time, and then the mobilization field is again reversed to drive the particles inward and the magnitude of the applied electric field is increased to retrap the particles. This can be repeated in a sequence, for example, to elute particles out of either the inlet or outlet port.